142967

SEVERN TRENT SERVICES

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October 10, 2000

STL SACRAMENTO PROJECT NUMBER: G0I250177

Rae Mindock
RMT Inc.
222 S Riverside Plaza
Suite 820
Chicago, IL 60606-5901

Dear Ms. Mindock,

This report contains the analytical results for the sample received under chain of custody by STL Sacramento on 9/25/00. This sample is associated with your Riverdale project.

The case narrative is an integral part of this report.

If you have any questions, please feel free to call me at (916)374-4408.

Sincerely,

Kathy Gill

Kathy Gill
Project Manager

FILE
Project name Riverdale
496201
Tech

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STL SACRAMENTO PROJECT NUMBER G0I250177

CASE NARRATIVE

STL SACRAMENTO PROJECT NUMBER G0I250177

Samples were received at 16 degree C packed in wet ice. Ice was melted.

SOLID, 8280, Dioxins/Furans, HRGC/LRMS

The associated Laboratory Control Sample has high recovery of PeCDD and PeCDF internal standards. The field samples have no positives detected for these analytes and there is no impact on the data.

There were no other anomalies associated with this project.

STL Sacramento

Quality Control Definitions

QC Parameter	Definition
QC Batch	A set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.
Duplicate Control Sample (DCS)	Consist of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects. This QC is performed only if required by client or when insufficient sample is available to perform MS/MSD.
Duplicate Sample (DU)	A second aliquot of an environmental sample, taken from the same sample container when possible, that is processed independently with the first sample aliquot. The results are used to assess the effect of the sample matrix on the precision of the analytical process. The precision estimated using this sample is not necessarily representative of the precision for other samples in the batch.
Laboratory Control Sample (LCS)	A volume of reagent water for aqueous samples or a contaminant-free solid matrix (Ottawa sand) for soil and sediment samples which is spiked with known amounts of representative target analytes and required surrogates. An LCS is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects.
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A field sample fortified with known quantities of target analytes that are also added to the LCS. Matrix spike duplicate is a second matrix spike sample. MSs/MSDs are carried through the entire analytical process and are used to determine sample matrix effect on accuracy of the measurement system. The accuracy and precision estimated using MS/MSD is only representative of the precision of the sample that was spiked.
Method Blank (MB)	A sample composed of all the reagents (in the same quantities) in reagent water carried through the entire analytical process. The method blank is used to monitor the level of contamination introduced during sample preparation steps.
Surrogate Spike	Organic constituents not expected to be detected in environmental media and are added to every sample and QC at a known concentration. Surrogates are used to determine the efficiency of the sample preparation and the analytical process.

Source: STL Sacramento® Quality Control Program, Policy QA-003, Rev. 0, 8/19/96.

Sample Summary
G0I250177

WO#	Sample #	Client Sample ID	Sampling Date	Received Date
DL15E	1	DSL5	9/18/00 10:30 AM	9/22/00 12:30 PM

Notes(s):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must no be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity, pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weigh

⌀002

STL
Committed To Your Success

Chicago Laboratory
2417 Bond Street
University Park, IL 60466
Phone: 708-534-5200
Fax: 708-534-5211

Report To:
Contact: Rae Mindock
Company: RMT
Address: 222 S. Riverside Plaza Suite 820 Chicago, IL 60606
Phone: 312 575 0200
Fax: 312 575 0300
E-Mail:

Bill To:
Contact: Same
Company:
Address:
Phone:
Fax:
PO#: Quote:

Shaded Areas For Internal Use Only of

Lab Lot #

Package Sealed Yes No	Samples Sealed Yes No
Received on Ice Yes No	Samples Intact Yes No
Temperature °C	of Cooler
Within Hold Time Yes No	Preserv. Indicated Yes No NA
pH Check ok Yes No NA	Res. Cl_2 Check ok Yes No NA
Sample Labels and COC Agree Yes No COC not present	

Sampler Name: H. Seus
Signature: Heather Seus
Project Name: Riverdale
Project Number:
Project Location:
Date Required Hard Copy: / /
Lab PM:
Fax: / /

Refrg # / # Cont. / Volume / Preserv

Laboratory ID	MS-MSD	Client Sample ID	Sampling Date	Sampling Time	Matrix	Comp/Grab	Dioxin	Additional Analyses / Remarks
		DSL5 2-4oz	9-19-00	10:30	S		HS	~~Low Level Dioxin 8290~~ High Level Dioxin — 8280
								2 Week TAT

RECEIVED IN GOOD CONDITION UNDER COC
SEP 22 2000
INI. GC

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
Heather Seus	RMT	9/19/00		[signature]	STL-W.SAC	9-22-00	1230
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME

Matrix Key
WW = Wastewater, W = Water, S = Soil, SL = Sludge, MS = Miscellaneous, OL = Oil, A = Air
SE = Sediment, SO = Solid, DS = Drum Solid, DL = Drum Liquid, L = Leachate, WI = Wipe, O =

Container Key
1. Plastic
2. VOA Vial
3. Sterile Plastic
4. Amber Glass
5. Widemouth Glass
6. Other

Preservative Key
1. HCl, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn Acetate, Cool to 4°
6. Cool to 4°
7. None

COMMENTS:

Date Received / /
Courier: Hand Delivered ☐
Bill of Lading:

SEVERN TRENT SERVICES

LOT RECEIPT CHECKLIST

STL Sacramento

CLIENT RMT / STL Chicago PM KG LOG # 5552

LOT# (QUANTIMS ID) BOI 250177 QUOTE# 38342 LOCATION W12B

	Initials	Date
DATE RECEIVED 9-22-00 TIME RECEIVED 0930	GC	9-22-00

DELIVERED BY
- ☒ FEDEX
- ☐ CA OVERNIGHT
- ☐ CLIENT
- ☐ AIRBORNE
- ☐ GOLDENSTATE
- ☐ DHL
- ☐ UPS
- ☐ BAX GLOBAL
- ☐ GO-GETTERS
- ☐ QES COURIER
- ☐ B & B
- ☐ OTHER _____

CUSTODY SEAL STATUS ☐ INTACT ☒ BROKEN ☐ N/A

CUSTODY SEAL #(S) _____

SHIPPPING CONTAINER(S) ☐ STL ☒ CLIENT ☐ N/A

TEMPERTURE RECORD (IN °C) IR 1☐ 2☒ ☐ OTHER _____

COC #(S) _____

TEMPERATURE BLANK _____

AMBIENT TEMPERATURE 16°

COLLECTOR'S NAME: ☐ Verified from COC ☒ Not on COC

pH MEASURED ☐ YES ☐ ANOMALY ☒ N/A

LABELED BY..... | DS | 9-22-00

LABELS CHECKED BY.....

SHORT HOLD TEST NOTIFICATION

SAMPLE RECEIVING
WETCHEM ☒ N/A

☐ METALS NOTIFIED OF FILTER/PRESERVE VIA VERBAL & EMAIL ☒ N/A

☐ COMPLETE SHIPMENT RECEIVED IN GOOD CONDITION WITH APPROPRIATE TEMPERATURES, CONTAINERS, PRESERVATIVES ☒ N/A

☒ Clouseau ☒ TEMPERATURE EXCEEDED (2 °-6 °C) ☐ N/A | GC | 9-22-00

☒ WET ICE ☐ BLUE ICE ☐ GEL PACK

☒ PM NOTIFIED ☐ NO COOLING AGENTS USED

Notes: WET ICE WAS ALL MELTED

LEAVE NO SPACES BLANK. USE "N/A" IF NOT APPLICABLE. INITIAL AND DATE ALL "N/A" ENTRIES. QA185 8/00 NEK

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VOA *																				
VOAh *																				
____AGB																				
AGBs																				
250AGB																				
250AGBs																				
250AGBn																				
250AGBna																				
____AGJ																				
500AGJ																				
250AGJ																				
125AGJ																				
____CGJ																				
500CGJ																				
250CGJ																				
125CGJ	2																			
____PB/PJ																				
____PBn/PJn																				
500PB/PJ																				
500PBn/PJn																				
500PBna																				
500PBzn/na																				
250PB																				
250PBn																				
250PBna																				
250PBzn/na																				
____*CT																				
Encore																				
Folder/Filter																				
PUF																				
Petri/Filter																				
XAD Trap																				
Ziploc																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

h = hydrochloric acid s = sulfuric acid na = sodium hydroxide n = nitric acid zn = zinc acetate

* Number of VOA's with air bubbles present / total number of VOA's

SOLID, 8280, Dioxins/Furans, HRGC/LRMS

RMT

Client Sample ID: DSL5

Trace Level Organic Compounds

Lot-Sample #...: G0I250177-001 **Work Order #...:** DL15E101 **Matrix.....:** SOLID
Date Sampled...: 09/18/00 **Date Received..:** 09/22/00
Prep Date.....: 09/30/00 **Analysis Date..:** 10/04/00
Prep Batch #...: 0276488
Dilution Factor: 1

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	** 0.038	ng/g	SW846 8280
Total TCDD	ND	** 0.038	ng/g	SW846 8280
1,2,3,7,8-PeCDD	ND	** 0.032	ng/g	SW846 8280
Total PeCDD	ND	** 0.57	ng/g	SW846 8280
1,2,3,4,7,8-HxCDD	ND	** 0.024	ng/g	SW846 8280
1,2,3,6,7,8-HxCDD	ND	** 0.024	ng/g	SW846 8280
1,2,3,7,8,9-HxCDD	ND	** 0.023	ng/g	SW846 8280
Total HxCDD	ND	** 0.023	ng/g	SW846 8280
1,2,3,4,6,7,8-HpCDD	ND	** 0.042	ng/g	SW846 8280
Total HpCDD	ND	** 0.042	ng/g	SW846 8280
OCDD	ND	** 0.046	ng/g	SW846 8280
2,3,7,8-TCDF	ND	** 0.069	ng/g	SW846 8280
Total TCDF	ND	** 0.069	ng/g	SW846 8280
1,2,3,7,8-PeCDF	ND	** 0.14	ng/g	SW846 8280
2,3,4,7,8-PeCDF	ND	** 0.14	ng/g	SW846 8280
Total PeCDF	ND	** 0.14	ng/g	SW846 8280
1,2,3,4,7,8-HxCDF	ND	** 0.021	ng/g	SW846 8280
1,2,3,6,7,8-HxCDF	ND	** 0.021	ng/g	SW846 8280
2,3,4,6,7,8-HxCDF	ND	** 0.023	ng/g	SW846 8280
1,2,3,7,8,9-HxCDF	ND	** 0.023	ng/g	SW846 8280
Total HxCDF	ND	** 0.021	ng/g	SW846 8280
1,2,3,4,6,7,8-HpCDF	ND	** 0.015	ng/g	SW846 8280
1,2,3,4,7,8,9-HpCDF	ND	** 0.018	ng/g	SW846 8280
Total HpCDF	ND	** 0.015	ng/g	SW846 8280
OCDF	ND	** 0.040	ng/g	SW846 8280

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	75	(40 - 120)
13C-2,3,7,8-TCDF	79	(40 - 120)
13C-1,2,3,6,7,8-HxCDD	86	(40 - 120)
13C-1,2,3,4,6,7,8-HpCDF	94	(40 - 120)
13C-OCDD	89	(40 - 120)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

QC DATA ASSOCIATION SUMMARY

G0I250177

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SOLID	SW846 8280		0276488	

METHOD BLANK REPORT

Trace Level Organic Compounds

Client Lot #...: G0I250177 **Work Order #...:** DLELG101 **Matrix.....:** SOLID
MB Lot-Sample #: G0J020000-488

Prep Date.....: 09/30/00
Analysis Date..: 10/03/00 **Prep Batch #...:** 0276488
Dilution Factor: 1

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.057	ng/g	SW846 8280
Total TCDD	ND	0.057	ng/g	SW846 8280
1,2,3,7,8-PeCDD	ND	0.75	ng/g	SW846 8280
Total PeCDD	ND	0.75	ng/g	SW846 8280
1,2,3,4,7,8-HxCDD	ND	0.060	ng/g	SW846 8280
1,2,3,6,7,8-HxCDD	ND	0.062	ng/g	SW846 8280
1,2,3,7,8,9-HxCDD	ND	0.058	ng/g	SW846 8280
Total HxCDD	ND	0.058	ng/g	SW846 8280
1,2,3,4,6,7,8-HpCDD	ND	0.056	ng/g	SW846 8280
Total HpCDD	ND	0.056	ng/g	SW846 8280
OCDD	ND	0.079	ng/g	SW846 8280
2,3,7,8-TCDF	ND	0.066	ng/g	SW846 8280
Total TCDF	ND	0.066	ng/g	SW846 8280
1,2,3,7,8-PeCDF	ND	0.13	ng/g	SW846 8280
2,3,4,7,8-PeCDF	ND	0.12	ng/g	SW846 8280
Total PeCDF	ND	0.12	ng/g	SW846 8280
1,2,3,4,7,8-HxCDF	ND	0.033	ng/g	SW846 8280
1,2,3,6,7,8-HxCDF	ND	0.032	ng/g	SW846 8280
2,3,4,6,7,8-HxCDF	ND	0.035	ng/g	SW846 8280
1,2,3,7,8,9-HxCDF	ND	0.036	ng/g	SW846 8280
Total HxCDF	ND	0.032	ng/g	SW846 8280
1,2,3,4,6,7,8-HpCDF	ND	0.074	ng/g	SW846 8280
1,2,3,4,7,8,9-HpCDF	ND	0.085	ng/g	SW846 8280
Total HpCDF	ND	0.074	ng/g	SW846 8280
OCDF	ND	0.088	ng/g	SW846 8280

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	69	(40 - 120)
13C-2,3,7,8-TCDF	76	(40 - 120)
13C-1,2,3,6,7,8-HxCDD	95	(40 - 120)
13C-1,2,3,4,6,7,8-HpCDF	115	(40 - 120)
13C-OCDD	102	(40 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot #...: G0I250177 **Work Order #...:** DLELG102 **Matrix.....:** SOLID
LCS Lot-Sample#: G0J020000-488
Prep Date.....: 09/30/00 **Analysis Date..:** 10/05/00
Prep Batch #...: 0276488
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
2,3,7,8-TCDD	**2.50**	**2.66**	ng/g	**106**	**SW846 8280**
1,2,3,7,8-PeCDD	**6.25**	**7.80 a**	ng/g	**125**	**SW846 8280**
1,2,3,6,7,8-HxCDD	**6.25**	**6.54**	ng/g	**105**	**SW846 8280**
1,2,3,4,6,7,8-HpCDD	**6.25**	**7.19**	ng/g	**115**	**SW846 8280**
OCDD	**12.5**	**13.1**	ng/g	**105**	**SW846 8280**
2,3,7,8-TCDF	**2.50**	**2.65**	ng/g	**106**	**SW846 8280**
1,2,3,7,8-PeCDF	**6.25**	**7.51 a**	ng/g	**120**	**SW846 8280**
1,2,3,6,7,8-HxCDF	**6.25**	**6.66**	ng/g	**106**	**SW846 8280**
1,2,3,4,6,7,8-HpCDF	**6.25**	**6.71**	ng/g	**107**	**SW846 8280**
OCDF	**12.5**	**12.4**	ng/g	**99**	**SW846 8280**

INTERNAL STANDARD	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	75	(40 - 120)
13C-2,3,7,8-TCDF	76	(40 - 120)
13C-1,2,3,6,7,8-HxCDD	97	(40 - 120)
13C-1,2,3,4,6,7,8-HpCDF	95	(40 - 120)
13C-OCDD	103	(40 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

Trace Level Organic Compounds

Client Lot #...: G0I250177 **Work Order #...:** DLELG102 **Matrix.....:** SOLID
LCS Lot-Sample#: G0J020000-488
Prep Date.....: 09/30/00 **Analysis Date..:** 10/05/00
Prep Batch #...: 0276488
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2,3,7,8-TCDD	**106**	**(70 - 115)**	**SW846 8280**
1,2,3,7,8-PeCDD	**125 a**	**(71 - 116)**	**SW846 8280**
1,2,3,6,7,8-HxCDD	**105**	**(78 - 116)**	**SW846 8280**
1,2,3,4,6,7,8-HpCDD	**115**	**(73 - 121)**	**SW846 8280**
OCDD	**105**	**(74 - 112)**	**SW846 8280**
2,3,7,8-TCDF	**106**	**(76 - 108)**	**SW846 8280**
1,2,3,7,8-PeCDF	**120 a**	**(73 - 112)**	**SW846 8280**
1,2,3,6,7,8-HxCDF	**106**	**(68 - 119)**	**SW846 8280**
1,2,3,4,6,7,8-HpCDF	**107**	**(72 - 110)**	**SW846 8280**
OCDF	**99**	**(73 - 110)**	**SW846 8280**

INTERNAL STANDARD	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	75	(40 - 120)
13C-2,3,7,8-TCDF	76	(40 - 120)
13C-1,2,3,6,7,8-HxCDD	97	(40 - 120)
13C-1,2,3,4,6,7,8-HpCDF	95	(40 - 120)
13C-OCDD	103	(40 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.